

PPM QPL - 1651, 1652, 1585, 1940, 1588, 1625, 1579, 1580, 1930, 1561, 1721, 1680, 1530, 2077, 2099, 2098, 2184, 2116, 2196, 1831, 1531, 1532, 171, 2074, 2179, 1838, 1839

Material Safety Data Sheet



Aluminum Company of America
1501 Alcoa Building, Pittsburgh, PA 15219

No. 384C

| | | | | | | | |
|-------------|-----------------|-----------|--------------|------|------------|---------|------------|
| Common Name | Aluminum Alloys | Phone No. | 412-553-4001 | Date | 1984-12-03 | Revised | 1985-07-10 |
|-------------|-----------------|-----------|--------------|------|------------|---------|------------|

Hazardous Material (as Defined in 29 CFR 1910.1200)

| | | | | | |
|--------------------------------------|---|---|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/> Flammable | <input type="checkbox"/> Explosive | <input type="checkbox"/> Organic Peroxide | <input type="checkbox"/> Irritant | <input type="checkbox"/> Ingestion | <input checked="" type="checkbox"/> Other Health Hazard (See Sec. VI) |
| <input type="checkbox"/> Combustible | <input type="checkbox"/> Reactive | <input type="checkbox"/> Pyrophoric | <input type="checkbox"/> Sensitizer | <input type="checkbox"/> Inhalation | |
| <input type="checkbox"/> Oxidizer | <input type="checkbox"/> Water Reactive | <input type="checkbox"/> Compressed Gas | <input type="checkbox"/> Corrosive | <input type="checkbox"/> Absorption | <input checked="" type="checkbox"/> OSHA or ACGIH Limit |

SECTION I. Material Description

Chemical Name & Formula: Mixture (See Attachment)

Other Designation:

CAS No.: See Attachment

Manufacturer: Alcoa

Dms 1580

SECTION II. Ingredients

See attachment
for specific
alloy ingredients.

ACGIH TLVs (1984)

Al - Total Dust - 10 mg/m³ (TWA)
- 20 mg/m³ (STEL)
- Resp. Dust & Fume - 5 mg/m³ (TWA)
*Cu - Fume - 0.2 mg/m³ (TWA)

Occupational Exposure Limits

OSHA PELs

*Cu - Fume - 0.1 mg/m³ (TWA)

*Reference Section VI for processes and alloys where copper limits apply.

SECTION III. Physical Data

| | |
|--------------------------|---|
| Physical Form: | Solid (Ingot, Wrought, Castings, etc.) |
| Boiling Temperature: | NA |
| Freeze-Melt Temperature: | Wide Range - generally 900 - 1200°F (482-649°C) |
| Vapor Pressure: | NA |
| Evaporation Rate: | NA |
| Specific Gravity: | NA |
| Density: | Range - generally 0.095 - 0.113 lb/in. ³ |
| Water Solubility: | None |
| pH: | NA |
| Color: | Silvery |
| Odor: | None |



SECTION IV. Fire and Explosion Data

| | | | | |
|----------------|-------------------------|--------------------------------|--------|--------|
| Flashpoint: NA | Auto-Ignition Temp.: NA | Flammability Limits in Air: NA | Lower: | Upper: |
|----------------|-------------------------|--------------------------------|--------|--------|

Castings, ingots, sheet, plate, forgings, extrusions, etc., do not present fire or explosion hazards under normal conditions. Use fire fighting methods and materials that are appropriate for surrounding fire.

Small chips, fine turnings, and dust may ignite readily. Use coarse water spray on chips, turnings, etc. Use class D extinguishing agents or dry sand on fines. Do not use halogenated extinguishing agents on small chips or fines.

Fire fighters should wear self-contained breathing apparatus and full protective clothing when appropriate.

Dust clouds may be explosive. Prevent formation of a dust cloud.

Molten aluminum may explode on contact with water. It may also react violently with water, rust, and certain metal oxides (e.g., oxides of copper, iron, and lead).

SECTION V. Reactivity Data

Stable under normal conditions of use, storage and transportation.

For finely divided aluminum (e.g., small chips, fines):

With water: Generates hydrogen and heat slowly. Water/aluminum mixtures may be hazardous when confined.

With heat: Oxidizes at a temperature-dependent rate.

With strong oxidizers: Violent reaction with much heat generation.

With acids & alkalis: Reacts to generate hydrogen.

With halogenated compounds: Halogenated hydrocarbons can react violently with finely divided aluminum.

Section VI. Health Hazard Information

(See Section II for exposure limits.)

Aluminum dust/fines and fumes are low health risk by inhalation. For standard operations (e.g., milling, cutting, grinding), aluminum should be treated as a nuisance dust and is so defined by the American Conference of Governmental Industrial Hygienists (ACGIH). According to AIHA Hygiene Guide:

Toxicity by ingestion: None expected.

Skin & Eyes: Not an irritant.

As stated above, most alloys have a low health risk potential. The potential for overexposure to copper fume, however, may exist when welding, flame cutting, etc. on alloys containing high amounts of copper (e.g., >2.5%). These alloys include 2XX.X, 3XX.X, & 8XX.X casting series alloys; 2XXX and 7XXX series and 4145 wrought alloys. See attachment for specific alloys. Overexposure to copper fume can result in upper respiratory tract irritation, nausea, and metal fume fever.

Nickel and chromium are contained in certain alloys at levels of 0.1% or more (see attachment). Chromium and nickel and their compounds are listed in the 3rd Annual Report on Carcinogens, as prepared by the National Toxicology Program (NTP). Their presence in our alloys, however, does not present a carcinogenic or other health concern due to either their low concentrations or the chemical form in which they are present.

Plasma arc cutting or welding aluminum can generate ozone. Overexposures to ozone can result in mucous membrane irritation, as well as pulmonary changes including irritation, congestion and edema.

Reference Alcoa MSDS No. 214 for hazards and appropriate safeguards concerning welding with aluminum.

Section VII. Spill, Leak & Disposal Procedures

Collect scrap for remelting.

RCRA Hazardous Waste No.

Not Federally Regulated

Section VIII. Special Protection Information

For dust or fume exposure, use with adequate ventilation to meet the exposure limits as listed in Section II.

Where the exposure limits may be exceeded, use NIOSH approved respiratory protection.

Select appropriate respirator (e.g., & fume respirator, etc.) based on the actual or potential airborne contaminants and their concentrations present.

Section IX. Special Precautions & Comments

Handling molten aluminum presents special hazards. Reference Alcoa MSDS No. 478.

Handling remelt ingot presents special hazards. Reference Alcoa MSDS No. 516.

Handling aluminum powder and granule products presents special hazards. Reference Alcoa MSDS Nos. 123, 124, 125, 126, or 127.

Chemical substance components have been reported to the EPA Office of Toxic Substances in accordance with the requirements of the Toxic Substances Control Act (Title 40 CFR Part 710).

DOT Shipping Name, Hazard Class, I.D. No. (if applicable)

Not Regulated

Section X. References

American Industrial Hygiene Assoc. (AIHA) Hygienic Guide Series (Revised June 1978).

Alcoa MSDS Nos.:

123, 124, 126, 127 - Atomized Aluminum Powders; 125 - Atomized Aluminum Granules; 214 - Welding Wire;
303, C303, 326, 333, 337, C337, C384, 390, C390 - See attachment for content;
471 - Aluminum Dross; 478 - Molten Aluminum; 516 - Remelt Ingot; C516;
517 - Aluminum Scrap

Information herein is given in good faith as authoritative and valid; however, no warranty, express or implied, can be made.

Material Safety Data Sheet

Attachment



Aluminum Company of America
1501 Alcoa Building, Pittsburgh, PA 15219

No. 384C

ALUMINUM ALLOY* INGREDIENTS (BY SERIES) GREATER THAN OR EQUAL TO 1% (0.1% for Nickel and Chromium)

CAS No.: Si (7440-21-3); Fe (7439-89-6); Cu (7440-50-8); Mn (7439-96-5); Mg (7439-95-4);
Cr (7440-47-3); Ni (7440-02-0); Zn (7440-66-6); Al (7429-90-5); Sn (7440-31-5)

I. Castings (Ingot, Sand, Permanent Mold, & Die)

| <u>1XX.0</u> | <u>2XX.0</u> | <u>3XX.0</u> | <u>4XX.0</u> | <u>5XX.0</u> | <u>7XX.0</u> | <u>8XX.0</u> |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Aluminum | Silicon | Silicon | Silicon | Silicon | Iron | Silicon |
| | Iron | Iron | Iron | Iron | Copper | Copper |
| | Copper | Copper | Nickel | Magnesium | Magnesium | Nickel |
| | Magnesium | Magnesium | Aluminum | Zinc | Chromium | Aluminum |
| | Chromium | Chromium | | Aluminum | Nickel | Tin |
| | Nickel | Nickel | | | Zinc | |
| | Zinc | Zinc | | | Aluminum | |
| | Aluminum | Aluminum | | | | |

II. Wrought Aluminum Alloys

| <u>1XXX</u> | <u>2XXX</u> | <u>3XXX</u> | <u>4XXX</u> | <u>5XXX</u> | <u>6XXX</u> | <u>7XXX</u> | <u>8XXX</u> |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Aluminum | Silicon | Silicon | Silicon | Manganese | Silicon | Copper | Silicon |
| | Iron | Manganese | Iron | Magnesium | Iron | Manganese | Iron |
| | Copper | Magnesium | Copper | Chromium | Copper | Magnesium | Copper |
| | Manganese | Chromium | Manganese | Zinc | Manganese | Chromium | Manganese |
| | Magnesium | Aluminum | Magnesium | Aluminum | Magnesium | Zinc | Nickel |
| | Chromium | | Chromium | | Chromium | Aluminum | Zinc |
| | Nickel | | Nickel | | Zinc | | Aluminum |
| | Aluminum | | Aluminum | | Aluminum | | Tin |

* Please reference the following Alcoa Material Safety Data Sheets for these specific aluminum alloys:

| <u>MSDS No.</u> | <u>Alloys</u> |
|---|--|
| No. 303 - Alcoa Aluminum Casting Alloys Containing Beryllium Additions. | A357.0, A357.2, 358.2, 364.2 |
| No. 326 - P/M Alloys Containing Cobalt Additions | P/M Alloys 7090 & 7091 - Billet & Wrought Products |
| No. 333 - Alcoa Aluminum Alloys Containing Zinc Additions. | C8F, C9F |
| No. 337 - Alcoa Aluminum Alloys Containing Lithium Additions. | Alithalite, Alithalloy, 2090 |
| No. 390 - Alcoa Aluminum Alloys Containing Lead Additions. | 6262, 2011 |

Note: Other non-registered "C" alloys are covered by MSDSs numbered C303, C337, C384, C390, and C516

Material Safety Data Sheet

Attachment



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1901 Alcoa Building, Pittsburgh, PA 15219

NO. 384C

ALLOYS CONTAINING >2.5% COPPER (COPPER FUME LIMITS APPLY - SEE SECTION VI)

| <u>2XX.X</u> | <u>3XX.X</u> | <u>8XX.X</u> | <u>2XXX</u> | <u>4XXX</u> | <u>7XXX</u> |
|--------------|--------------|--------------|-------------|-------------|-------------|
| A206.2 | 308.0 | 853.0 | 2011 | 4145 | 7001 |
| 208.2 | 308.2 | | 2014 | | 7050 |
| 224.0 | 319.0 | | 2017 | | 7150 |
| 224.2 | 319.2 | | 2018 | | |
| 242.0 | 331 | | 2024 | | |
| A242.0 | 332.0 | | 2025 | | |
| 242.2 | 332.2 | | 2036 | | |
| A242.2 | 333.0 | | 2090 | | |
| 295.2 | 333.1 | | 2117 | | |
| 296.0 | 380.2 | | 2124 | | |
| 296.2 | A380.2 | | 2214 | | |
| | 384.2 | | 2218 | | |
| | 385.1 | | 2219 | | |
| | A390.0 | | 2224 | | |
| | A390.1 | | 2319 | | |
| | 390.2 | | 2324 | | |
| | | | 2419 | | |
| | | | 2519 | | |
| | | | 2618 | | |